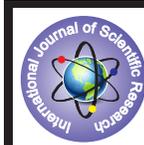


## Nasogastric Decompression In Upper Gastrointestinal Surgery: is it Required



### Medical Science

**KEYWORDS :** Nasogastric decompression, upper gastrointestinal surgery.

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### ABSTRACT

*To determine whether nasogastric decompression can be done safely in operated cases of perforation peritonitis (gastric and duodenal perforation), we did a prospective study from Oct '2010 to Oct '2011 on 106 patients. These patients were randomised in to two groups, patients with nasogastric tube (54) and those without it (52). Patients without nasogastric tube showed early appearance of bowel functions. Also pulmonary complications were much less in patients without nasogastric tube. Other complications such as nausea, vomiting, wound infection and anastomotic leak were similar in both the groups. Hence we conclude that nasogastric decompression is not required in upper gastrointestinal surgery.*

### INTRODUCTION

Nasogastric decompression, which was popularised after introduction of Levin's nasogastric tube in 1926, is intended to drain secretions and gas from the upper gastrointestinal tract, thereby reducing vomiting, distension and abdominal discomfort<sup>(1)</sup>. However, the advocacy of its routine use after laparotomy has been based on conjecture with little scientific foundation.<sup>(2-4)</sup>

In 1963 Geber<sup>(5)</sup> stated that routine use of naso-gastric decompression after abdominal surgery was not necessary and is accompanied by complications. Recently many meta-analyses have disregarded the use of nasogastric decompression.<sup>(6, 7)</sup>

After upper gastrointestinal surgery, nasogastric or nasojejunal decompression has been considered necessary to prevent the consequences of post operative ileus and anastomotic leakage<sup>(8)</sup>. Although its use remains widespread, studies have repeatedly shown that nasogastric decompression is unnecessary in gastrointestinal procedures<sup>(9-11)</sup>. Rationale of early removal of nasogastric tube is that the postoperative dysmotility predominantly affects the stomach and colon, with the small bowel recovering normal function 4-6 hours after laparotomy<sup>(12)</sup>. Thus preserving small bowel peristaltic activity and absorptive capacity. Also ability of small bowel to withhold large quantity of upper GI secretions (approx. 3-4 lit/day) during the period of ileus is well tolerated.<sup>(2-4)</sup>

Furthermore, the nasogastric tube is associated with potential complications of nasopharyngeal and respiratory tract as well as generalised subjective patient discomfort.<sup>(13)</sup> The purpose of this study was to determine whether gastrointestinal surgeries can be performed safely with the use of nasogastric tube and its effect on various complications of GI surgery.

### MATERIAL AND METHOD

This prospective study was carried out after approval from the local ethical committee. Patients were informed for inclusion in the study. A written informed consent was taken from all of them. Patients, who entered the study, were randomly put into TEST GROUP (TG) and CONTROL GROUP (CG). From October 2010 to October 2011, we included 106 patients in the study and were randomly distributed to the two groups. In test group (n=52), nasogastric tube was removed immediately postoperatively and in control group (n=54), tube was removed after the appearance of bowel function. All the patients who underwent upper gastrointestinal surgery during emergency for perforation peritonitis (gastric and duodenal perforations) were included in the study. Patients who had any other medical morbidity or those who were operated outside our institution and were referred here were excluded from the study.

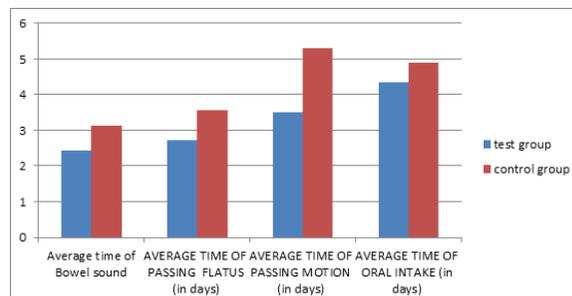
All the patients were then monitored postoperatively for re-

covery and complications. Patients were monitored for appearance of bowel sounds, passing of flatus and motion. Orals were started only after the patients passed flatus. Initially liquid were allowed and then soft diet. Complications like nausea and vomiting were managed by antiemetics. If the patients have abdominal distension then nasogastric tube was inserted and was kept till the bowel function is returned. The length of hospital stay was defined as the duration of stay from the day of operation to day of discharge or transfer to another department. Other complications such as pulmonary complication, wound complications and anastomotic leak were also monitored. Pulmonary complications included were atelectasis and pneumonia. These were defined as presence of crepts on auscultation and abnormal chest X-ray. Wound infections were managed by daily dressing. All the statistical analyses were done with SSPS software for windows using Fisher's exact test.

### RESULTS

This study was successfully performed in 106 patients out of which 54 were randomised to the control group and 52 to test group. The age and sex of the patient and the site of the perforation showed similar distribution in both the groups.

In terms of recovery, patients without nasogastric tube showed better response with early appearance of bowel sound ( $p < 0.05$ ), flatus ( $P < 0.05$ ) and motion ( $P < 0.05$ ). However, the length of hospital stay was not statistically significant ( $P = 0.368$ ). Incidence of nausea and vomiting was also statistically insignificant ( $P < 0.05$ ). Nasogastric tube was inserted in those patients who experienced abdominal distension. However the difference in the two groups was insignificant. The incidence of anastomotic leak was also insignificant.



**Figure 1-chart showing the appearance of bowel function in studied groups**

The incidence of complications such as pulmonary complication (atelectasis and pneumonia) was more in control group. The difference was statistically significant ( $P = 0.042$ ). No significant difference was found in other complications such as wound infec-

tion and burst abdomen and abdominal abscess.

**Table -1. Incidence of postoperative complications**

	Test group (n=52)	Control group(n=54)
Nausea	15(28.8%)	29(51.7%)
Vomiting	6(11.5%)	8(14.8%)
Abdominal distension	6(11.5%)	7(12.9%)
Pulmonary complications	3(5.7%)	11(20.7%)
Wound infection	6(11.5%)	6(11.1%)
Burst abdomen	5(9.6%)	4(7.4%)
Abdominal abscess	1(1.8%)	0

**DISCUSSION**

In general, prophylactic nasogastric decompression following abdominal operations has been undertaken with the intent of hastening return of bowel function, by emptying the stomach, easing respiration and diminishing the risk of aspiration of gastric contents and therefore decreasing the risk of pulmonary complications, increasing the patient comfort by lessening abdominal distension, protecting intestinal anastomosis by preventing anastomotic leakage and shortening hospital stay. <sup>(14)</sup>

However in 1963 Geber <sup>(5)</sup> stated that routine use of naso-gastric decompression after abdominal surgery was not necessary and is accompanied by complications. Furthermore it was shown in 1962 by Hanselman <sup>(13)</sup> that the nasogastric tube is associated with potential complications of the respiratory, nasopharyngeal and gastrointestinal tract, as well as generalized subjective patient discomfort.

Analysis by Nelson <sup>(14)</sup> was done which included 37 studies which fulfilled their criteria and has concluded that routine nasogastric decompression should be abandoned in favour of selective decompression after abdominal operations.

In our study, mean age of patients was less (of 41.53±12.8 yrs and 40.40±048 yrs in test group and control group respectively) as compared to most of the studies <sup>(15-19)</sup>. The reason is that in our study, none of the patients had malignancy or any other chronic illness (as these patients were excluded from our study) whereas most of the studies included patients having malignant diseases, which occurs in older patients.

After surgery, return of bowel sounds and motility usually occurs after 6-12 hours in small bowel, 12-24 hours in the stomach, and 48-72 hours in the colon. The mean time of appearance of bowel activity in our study was similar to most of the other studies. In present study as well as previous studies patients passed flatus much earlier in tubeless patients as compared to patients with nasogastric tube.

In our study and in most of the other studies the incidence of nausea was slightly higher in patients with nasogastric tube <sup>(15, 16)</sup>. However, in our study the incidence was not statistically significant. Also the incidence of vomiting was not statistically significant.

Most studies reported the incidence of post-operative pulmonary complications (pneumonia and atelectasis) in the non-routine use of nasogastric suction provided a benefit that approached statistical significance <sup>(16)</sup>. In our study also the incidence of pulmonary complications was significantly less in tubeless patients.

**CONCLUSION**

This Study has shown that post-operatively in patients without nasogastric decompression, there is early return of bowel function, less incidence of pulmonary complication and it avoids pa-

tient's discomfort which occurs in patients with tube. Hence we conclude that nasogastric decompression in upper gastrointestinal surgery is not required.

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